

WHAT IS CLAIMED IS:

1. An electron beam exposure apparatus for exposing a pattern on a wafer by an electron beam, comprising:

an electron beam generating section for generating the electron beam;

a deflecting section for deflecting the electron beam in order to apply the electron beam to a desired position on the wafer;

a wafer stage on which the wafer is mounted;

a stage position measuring section for measuring position of said wafer stage at a first time point and at a second time point which is later than the first time point;

a stage speed computing section for computing moving speed of said wafer stage based on the position of said wafer stage at the first time point and the position of said wafer stage at the second time point, which are measured by said stage position measuring section; and

a deflection amount correction section for computing position of said wafer stage at exposure time based on the moving speed of said wafer stage measured by said stage speed computing section, and for controlling deflection amount of the electron beam to be deflected by said deflecting section at the exposure time.

2. The electron beam exposure apparatus as claimed in claim 1, wherein said stage speed computing section comprises:

a first stage position storage section storing thereon the position of said wafer stage at the first time point;

a second stage position storage section storing thereon the position of said wafer stage at the second time point; and

a gradient computing section for computing the moving speed of said wafer stage based on the position of said wafer stage at the first time point stored on said first stage position storage section and the position of said wafer stage at the second time point stored on said second stage position storage section, and

said deflection amount correction section comprises:

a first deflection data generating section for generating a first deflection data, which is to be supplied to said deflecting section, based on the position of said wafer stage at the second time point stored on said second stage position storage section; and

a second deflection data generating section for generating a second deflection data indicating the deflection amount corresponding to the moving distance of said wafer stage during a time interval between the second time point and the exposure time based on the moving speed of said wafer stage computed by said gradient computing section, wherein

said deflection amount correction section supplies the first deflection data and the second deflection data to said deflecting section.

3. The electron beam exposure apparatus as claimed in claim 2, wherein said deflection amount correction section further comprises an adding section for adding the first deflection data and the second deflection data, and supplying the added data to said deflecting section.

4. The electron beam exposure apparatus as claimed in claim 2, wherein said deflecting section comprises:

a first deflector for deflecting the electron beam based on the first deflection data; and

a second deflector for deflecting the electron beam based on the second deflection data, wherein

said deflection amount correction section supplies the first deflection data to said first deflector, and supplies the second deflection data to said second deflector.

5. The electron beam exposure apparatus as claimed in claim 2, wherein said second deflection data generating section computes the moving distance of said wafer stage during a time interval between the second time point and the exposure time by accumulating the moving distance per unit time whenever the unit time is elapsed, the moving distance per unit time being computed by said gradient computing section based on the moving speed of said wafer stage, and the unit time being shorter than the time interval between the first time point and the second time point, and then said second deflection data generating section generates the second deflection data indicating the deflection amount corresponding to the moving distance of said wafer stage during the time interval between the second time point and the exposure time.

6. The electron beam exposure apparatus as claimed in claim 5, wherein said second deflection data generating section computes the moving distance of said wafer stage during the time interval between the second time point and the exposure time by accumulating the moving distance per unit time whenever the unit time is elapsed after the second deflection data is initialized synchronizing with generation of the first deflection data by said first deflection data generating section.

7. The electron beam exposure apparatus as claimed in claim 2, wherein

said stage position measuring section measures position of said wafer stage at a predetermined time interval,

said first stage position storage section and said second stage position storage section update the position of said wafer stage to store whenever said stage position measuring section measures the position of said wafer stage,

said first deflection data generating section acquires exposure data including information indicating the exposure position on the wafer, and generates the first deflection data based on the position of said wafer stage stored on said second stage position storage section when the exposure data are acquired, and

said gradient computing section computes the moving speed of said wafer stage based on the position of said wafer stage stored on said first stage position storage section and said second stage position storage section when said first deflection data generating section acquires the exposure data.

8. An electron beam irradiation apparatus for irradiating an electron beam to a predetermined position in an object, comprising:

an electron beam generating section for generating the electron beam;

a deflecting section for deflecting the electron beam in order to apply the electron beam to a desired position on the object;

a stage on which the object is mounted;

a stage position measuring section for measuring position of said stage at a first time point and at a second time point which is later than the first time point;

a stage speed computing section for computing moving speed of said stage based on the position of said stage at the first

time point and the position of said stage at the second time point, which are measured by said stage position measuring section; and

a deflection amount correction section for computing position of said stage at exposure time based on the moving speed of said stage measured by said stage speed computing section, and for controlling deflection amount of the electron beam to be deflected by said deflecting section at the exposure time.

9. A deflection amount correction method for correcting deflection amount of an electron beam deflected by a deflecting section based on position of a wafer stage on which a wafer is mounted in an electron beam exposure apparatus for exposing a pattern on the wafer by the electron beam, comprising steps of:

measuring position of the wafer stage at a first time point and at a second time point which is later than the first time point;

computing moving speed of the wafer stage based on the position of the wafer stage at the first time point and the position of the wafer stage at the second time point; and

computing position of the wafer stage at exposure time based on the moving speed of the wafer stage, and controlling deflection amount of the electron beam at the exposure time.